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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER

MCDERMOTT, KEVIN

ART UNIT PAPER NUMBER

3635

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,844

Applicant(s)

DEFORD ET AL.

Examiner

McDermott, Kevin

Art Unit

3635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23-59 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18-21, 23-35, 37-55 and 57-59 is/are rejected.
- 7) ☒ Claim(s) 17, 36 and 56 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

Paragraph 33, line 4. Please provide the serial number of the application.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 does not appear to make sense. How can cement be selected from fibers?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 15, 18-21, 25, 30, 31, 33, 55, 58, and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by King.

King discloses in figure 1 and in column 2, lines 42-58, a generally lightweight fiber reinforced block 10. Block 10 is a fiber reinforced cellular concrete block that exhibits virtually all the beneficial properties of a typical concrete material, but with greatly increased strength and reduced weight.

Block 10 includes normal weight concrete factions 14 and lightweight factions 16 bonded to the normal factions 14. The normal weight factions 14 have a typical gas or air content of approximately 2% while the lightweight portions have approximately 25-40% gas entrained therein. The reinforcing fibers are polypropylene fibers, carbon fibers, or other suitable fibrous material.

Column 4, lines 5-12, disclose the factions being made from essentially the same material so that they may be simultaneously cast and cured together as an integral product. The bonding is facilitated by the fibers 22 at the interface, which extend between the different factions.

Regarding claims 1 and 55, the lightweight factions 16 are the claimed second component, and the normal weight factions 14 are the claimed first component. The factions 14, 16 are adjacent each other. The fibers 22 extend between the factions 14, 16 so that a mechanical bond is formed. This includes fibers 22 extending from fraction 16 into fraction 14. Additionally, since the factions 14, 16 may be simultaneously cast as an integral product a chemical bond inherently develops between the two concrete factions 14, 16.

Regarding the preformed cement layer itself, the preformed cement layer being capable of retaining its shape, and the preformed cement layer being flexible enough so that it is capable of being molded - all of these limitations are considered process steps used in manufacturing the construction component and are not relevant to patentability of the building material as claimed. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product

itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claim 2, the lightweight component 16 is made from concrete which is a curable material.

Regarding claim 3, the fibers 22 extend between the fractions 14, 16 so that a mechanical bond is formed. This includes fibers 22 extending from fraction 16 into fraction 14. Additionally, since the fractions 14, 16 may be simultaneously cast as an integral product a chemical bond inherently develops between the two concrete fractions 14, 16.

Regarding claim 4, the limitation describing "wicking" is considered a process step used in manufacturing the construction component and is not relevant to patentability of the building material as claimed. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claims 5 and 58, the claim is considered a process step used in manufacturing the construction component and is not relevant to patentability of the building material as claimed. Even though product-by-process claims are limited by and

defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claims 6 and 59, the fraction 16 is less dense than the fraction 14.

Regarding claim 7, the fraction 16 is reinforced with fibers 22.

Regarding claims 8 and 9, the fraction 14 at least partially surrounds fraction 16.

Regarding claim 15 as best understood, polypropylene and carbon fibers are synthetic fibers.

Regarding claim 18, fraction 16 is a lightweight material.

Regarding claim 19, the concrete of fraction 16 is a fire resistive material.

Regarding claims 20 and 21, the claim is considered a process step used in manufacturing the construction component and is not relevant to patentability of the building material as claimed. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claim 25, the fraction 16 is a lightweight core having a first and second side, and the fraction 14 is on the first side of fraction 16.

Regarding claim 30, the fraction 16 is cementitious.

Regarding claim 31, the fraction 16 is solid.

Regarding claim 33, the fraction 16 is homogeneous.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 14, 16, 18-22, 25, 26, 28-31, 33, 34, 37, 39, and 57, and claim 15 as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jungbluth in view of Soroushian.

Jungbluth is directed towards a fire resistant gate.

Regarding claim 1, Jungbluth discloses in figure 1 and in column 1, line 56 to column 2, line 58, a corrugated sheet of steel 1 with insulating layers 2 on both sides thereof, and the outer sides of the insulating layers 2 being provided with fiber reinforced thin cement layers 3 such as thin glass mat reinforced cement layers. The insulating layers 2 comprise cement-bonded expanded perlite with a density of only 0.4 to 0.5 ton/m³. A still lower density of 0.25 to 0.3 ton/m³ can be obtained by adding polyurethane in a small amount not more than 10% by weight. The insulating layer 2 is the claimed second component and one of the two fiber reinforced thin cement layers 3 is the first component.

However, Jungbluth does not specifically disclose the fibers being individualized.

Soroushian discloses in column 3, lines 24-40, individualizing fibers for mixing with cement-based material.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use individualized fibers in Jungbluth.

One of ordinary skill would have been motivated to make such a modification to reduce the bonding between fibers so they can be dispersed in conventional concrete mixtures using conventional mixing equipment at relatively low dosages of about 0.3-30kg per cubic meter, as discussed in Soroushian in column 3, lines 33-36.

Regarding the preformed cement layer itself, the preformed cement layer being capable of retaining its shape, and the preformed cement layer being flexible enough so that it is capable of being molded - all of these limitations are considered process steps used in manufacturing the construction component and are not relevant to patentability of the building material as claimed. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claim 2, the layers 3 are made from cement. Cement is a curable material.

Regarding claim 6, the insulating concrete 2 is less dense than the thin cement layers 3.

Regarding claim 7, Jungbluth's disclosure is discussed above. However, Jungbluth does not disclose reinforcing the insulating layer 2 with fibers.

Jungbluth and Soroushian both disclose reinforcing cement-based concrete with fibers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate fiber reinforcing into the insulative layer 2 of Jungbluth.

One of ordinary skill would have been motivated to make such a modification to increase the strength of the insulative layer 2.

Regarding claims 14 and 16, and claim 15 as best understood, Jungbluth's disclosure is discussed above. However, Jungbluth does not disclose the material used for the fibers.

Soroushian discloses in column 1, lines 45-50, using cellulose fibers, natural inorganic fibers such as carbon, synthetic and engineered fibers such as Kevlar and nylon.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of these known fibers in the fiber reinforced thin cement layers 3.

One of ordinary skill would have been motivated to make such a modification in order to absorb the undesirable tensile forces and impact stresses imposed on the insulating layers 2.

Regarding claim 18, the insulative material 2 is a lightweight material.

Regarding claim 19, the insulative material 2 is resistant to fire.

Regarding claims 20 and 21, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claim 22, cement is moldable.

Regarding claim 25, the insulative material 2 constitutes a core having two sides wherein the first component/thin concrete layer 3 is fiber cement facing the first side of the insulative material 2.

Regarding the pre-formed aspect of claim 25, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding claim 26, the insulative material 2 has two sides and a thin concrete layer 3 disposed on each side.

Regarding claims 28 and 57, the disclosures of Jungbluth and Soroushian are discussed above. However, neither Jungbluth nor Soroushian disclose the particular thickness of the fiber reinforced thin cement layers 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the thin cement layers 3 less than about 3/16", since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

One of ordinary skill would have been motivated to make such a modification to make the cement layers 3 strong enough to absorb undesirable tensile forces.

Regarding claim 29, the second facing is made from fiber reinforced cement.

Regarding claim 30, the insulative material core 2 is cementitious.

Regarding claim 31, the insulative material core 2 is solid.

Regarding claim 33, the insulative material is homogeneous from side to side of the gate.

Regarding claims 34 and 37, the insulative material is not homogeneous because there is a corrugated pan disposed in the insulative material 2 between the layers 3.

Regarding claim 39, it is a use claim. There are no additional structural limitations recited to differentiate it from claim 25.

It would have been an obvious design choice to make any construction product from the components recited in claims 1 and 25, including a trim board, because the Applicant has not disclosed that a trim board solves any stated problem or is for any particular purpose.

One of ordinary skill would have been motivated to make such a modification to make trim more durable.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jungbluth in view of Soroushian and further in view of Miller.

The disclosures of Jungbluth and Soroushian are discussed above. However, neither Jungbluth nor Soroushian disclose a third component disposed adjacent the first component so that the first component is disposed between the third and second components.

Miller discloses in figure 4 a fastener 10 installed in a support structure 99. The fastener 10 is a component and the support structure is made from two layers, each layer also being a component. The exterior layer is the first component and the interior layer is the second component. Consequently, the first component is disposed between the second and third components.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to dispose the fastener of Miller on the gate of Jungbluth so that the first thin cement layer 3 was disposed between the fastener and the insulative layer 2.

One of ordinary skill would have made such a modification so that signs could be hung on the gate.

Claims 1, 8, 9, 25, 27, 32, 33, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Soroushian.

Weaver discloses in figure 2 a planer wall panel 30 having a solid portion which includes spaced vertical studs 32 extending between a top beam 34 and a base beam 36. Insulation panels 40 extend between the vertical studs 32 and the outside face of the wall has a solid planar concrete surface 42.

The wall including the beams 34, 36 and surface 42 is the first component, and the insulation panels 40 are the second component. The first component at least partially surrounds the second component.

However, Weaver does not disclose the beams 34, 36 and the solid planar concrete surface 42 including fiber reinforcing.

Soroushian discloses in column 1, lines 45-50, using fibers to reinforce concrete.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reinforce the concrete beams and wall of Weaver with fibers.

One of ordinary skill would have made such a modification so the concrete would be able to withstand heavier loads.

Regarding claim 25, the insulation panels 40 have top and bottom sides, and are lightweight relative to the concrete beams 34, 36 and surface 42. The top and bottom sides correspond to the claimed first and second sides.

Regarding claim 27, the concrete forming the beams 34, 36 wraps around the top and bottom sides of the insulation panels 40.

Regarding claim 32, as shown in figure 2, the insulation panels 40 open to the outside of the panel.

Regarding claim 33, the insulation panel 40 is homogeneous.

Regarding claim 38, the walls panels 30 are each planks.

Claims 11 and 12, and claim 13 as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Soroushian and further in view of Schupak.

The disclosures of Weaver and Soroushian are discussed above. However, neither Weaver nor Soroushian specifically disclose the fibers having a planar orientation or orienting the fibers in the direction of loading.

Schupack discloses in figure 1 and in column 4, line 4 to column 5, line 60, a panel structure 10 having a cementitious core 12 reinforced at both of its faces by an elastic, woven, fabric layer 14. The fabric layer 14 has a substantially planar orientation being oriented in a plane parallel to a major plane of the core 12, and the fiber that make up the fabric layer 14 is inherently oriented in the direction of loading. The loading in this case is tensile loading, not a load applied perpendicular to a major surface of the panel 10.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to orient the fibers of Soroushian in the structure of Weaver so that the fibers have a planar orientation, are parallel to a major surface of the Weaver structure, and are oriented in the direction of loading.

One of ordinary skill would have made such a modification so the concrete would be able to withstand heavier loads.

Claims 1 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheber in view of Soroushian.

Sheber discloses in figure 8 and in column 4, lines 20-34, a concrete panel 70 having a pattern embossed thereon. The concrete panel is disposed within mold 3. The concrete panel 70 is the claimed first component and the mold 3 is the claimed second component.

However, Sheber does not disclose disposing fibers in the concrete of panel 70.

Soroushian discloses in column 1, lines 45-50, using fibers to reinforce concrete.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reinforce the concrete panel 70 of Sheber with fibers.

One of ordinary skill would have made such a modification so the concrete would be able to withstand heavier loads.

Claims 1 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins in view of Soroushian.

Perkins discloses in figures 3 and 4 and in column 5, lines 40-50, masonry blocks 12 having a decorative facing 14 disposed thereon. The masonry blocks 12 are made from concrete. Column 8, lines 8-16, discloses securing the facing 14 to the block 12 using an adhesive 53 disposed between the block 12 and facing 14. The concrete block 12 is the claimed first component, the decorative facing 14 is the claimed second component, and the adhesive is the claimed sub-layer disposed between the first and second components to improve bonding therebetween.

However, Perkins does not disclose disposing fibers in the concrete used to make the blocks 12.

Soroshian discloses in column 1, lines 45-50, using fibers to reinforce concrete.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reinforce the concrete block 12 of Perkins with fibers.

One of ordinary skill would have made such a modification so the concrete would be able to withstand heavier loads.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Soroshian and further in view of Anderson.

The disclosures of Weaver and Soroshian are discussed above.

However, neither Weaver nor Soroshian disclose making the insulation of Weaver a honeycombed configuration.

Anderson discloses a honeycomb core disposed between two exterior components 220 and 240.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a honeycomb-shaped insulation layer in Weaver for insulation layer 40.

One of ordinary skill would have made such a modification to increase the insulation characteristics of the panel.

Response to Arguments

Applicant's arguments filed 6/10/03 have been fully considered but they are not persuasive.

Applicant argues that the cited references do not disclose, either individually or in combination, a composite material having a pre-formed fiber-cement layer that is capable of retaining its shape and yet sufficiently flexible for a period of time after assembly that it is capable of being molded. Examiner disagrees.

Applicant claims a building material in claims 1 and 55, not a process for manufacturing the building material. Because Applicant is claiming a building material it does not matter if Examiner uses a pre-formed cement layer or a cast-in-place cement layer. Pre-forming the cement layer doesn't add another limitation to the building material. Similarly, describing the characteristics of the pre-formed cement during the manufacturing process does not add another limitation to the building material. Because Applicant is claiming the building material, the method of making the material is irrelevant. As explained above, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Allowable Subject Matter

Claims 17, 36, and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 17 and 56, the prior art does not disclose and it does not appear obvious to modify the prior art to disclose a building material as claimed in claims 1 and 55, respectively, wherein a first building component is reinforced with individualized cellulose fibers and at least a substantial portion of the lignin components are removed from the fiber cell walls.

Regarding claim 36, the prior art does not disclose and it does not appear obvious to modify the prior art to disclose a core having the limitations recited in claims 1 and 25, wherein the core also includes a plurality of vertical symmetrically opposed corrugated core layers.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kevin McDermott, whose telephone number is 703-308-8266.



Carl D. Friedman
Supervisory Patent Examiner
Group 3600

KM 8/15/03